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SOUTHERN FOREST EXPERIMENT STATION
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SUMMARY OF MIDSOUTH PEST CONDITIONS IN 1958

The Midsouth's forest insect situation looks fairly good at the moment, but several pests continue as a constant threat to timber stands.

FOREST INSECTS

The southern pine beetle is momentarily under better control than it has been for several years. In early 1958, however, rapidly developing infestations seriously threatened stands in the Big Thicket area of southeast Texas. An all-out control program effectively suppressed the outbreak by late summer. No concentrations are known to exist in the Midsouth, although single infested trees are occasionally found in former outbreak areas in Alabama, Louisiana, and Mississippi. There have been no indications of the beetles in Arkansas, Oklahoma, west Tennessee, or west Florida.

The black turpentine beetle is the most costly insect on State, Federal, and private lands in the South, and is steadily growing in importance. The beetles have been most prevalent in flatwoods forests, along creek bottoms, and on poorly drained sites. Mechanized logging on such sites--especially when heavy rains had softened the ground--caused excessive injury to roots. This damage, plus prolonged early summer flooding that further weakened the trees, created ideal conditions for beetle development.

Ips beetle populations have generally been low, but in localized areas of light rainfall small group kills occurred near burns and logging operations, and in overdense stands.

A sawfly, Neodiprion excitans, defoliated about 25,000 acres of mature loblolly pines in southeast Texas during the autumn. Natural enemies are expected to reduce the outbreak and may make direct control by aerial spraying unnecessary.

For the second year, the red-headed pine sawfly and Nantucket pine tip moth heavily infested young plantation pines in several States.

Ice storms during December damaged timber in some central and northern portions of the Deep South. The weakened trees may be attacked by bark beetles next spring and summer. Timber owners are warned to be on the lookout for such an eventuality.

Southern Pine Beetle

The southern pine beetle outbreak in southeast Texas was brought under control in the late summer. Bi-weekly inspection flights during the fall revealed no new beetle spots, but several small infestations have been detected in early 1959. Detection surveys will be continued and further action taken if necessary.

One small infestation involving 15 trees was reported in East Baton Rouge Parish, Louisiana, in October. The trees were promptly cut and sprayed with benzene hexachloride in fuel oil. No additional spots have been detected in the vicinity.

Single beetle trees are still scattered within the former epidemic areas in Alabama and Mississippi, but no groups of recently dead or dying pines were found in monthly operational flights over the National Forests this fall.

Black Turpentine Beetle

The black turpentine beetle continues to be a serious problem in many stands disturbed by logging. A major outbreak on the Kisatchie National Forest, Louisiana, and infestations on the DeSoto National Forest, Mississippi, were greatly reduced in recent months, but new buildups are a potential source of trouble on the Homochitto National Forest in Mississippi, the Alabama National Forests, and numerous private lands.

Beetles invaded the fresh stumps on cutting areas, and later infested some of the high-value residual trees. Heaviest concentrations developed where mechanized logging was done during wet seasons or on low, poorly drained sites. Root injury under these conditions has been severe. The greater the logging damage, the heavier the beetle attack.

Attacks on residual trees were especially common where timber was removed at intervals of several months--first for poles and piling, next for sawtimber, and finally for pulpwood. Populations increased steadily, for each new generation was provided with an abundance of fresh stumps and damaged trees. The repeated disturbances and fre-

quent relocation of woods roads further weakened the residual stands and made them highly susceptible. When cutting was terminated and fresh stumps were no longer available, emerging beetles spread to weakened trees, killing them by force of numbers.

Pine Sawflies

A sawfly, Neodiprion excitans (identified by H. H. Ross, State of Illinois Natural History Survey Division), defoliated scattered areas of loblolly pines in Hardin, Liberty, and Polk Counties, in southeast Texas, during October. Severely defoliated stands were well defined from the air. They totalled about 25,000 acres. In early November, the greenish, black-headed larvae spun cocoons on and in the litter near tree bases, and in bark crevices.

Many cocoons were parasitized by a wasp (Ichneumonidae). The adult wasps were emerging and depositing eggs in sound cocoons during November and December of 1958 and January of 1959. The wasps remain active for a month or more and can endure at least several days of freezing temperatures. These beneficial insects probably will continue to emerge and parasitize additional cocoons during the winter. Adult sawflies are expected to emerge and deposit eggs during late February or March. Studies are being made to determine if artificial control will be necessary.

The red-headed pine sawfly (Neodiprion lecontei) defoliated young plantations of all southern pine species at various points in the South. Repeated defoliation in west-central Louisiana and east Texas caused mortality in some plantations and seriously retarded growth in others.

A sawfly of the Neodiprion virginianus complex (possibly a new species), defoliated shortleaf pines in Union County, Arkansas, in the fall of 1957 (see Southern Forest Pest Reporter No. 22), but did not reappear this year. The destruction of overwintering cocoons by parasitic insects probably helped to terminate the outbreak.

Negligible feeding was done by a pine sawfly (Neodiprion taedae linearis) that is a common spring defoliator of loblolly pines in southern Arkansas and northern Louisiana. An examination of pine stands in early April indicated that egg laying had been unusually light.

Nantucket Pine Tip Moth

The pine tip moth is the commonest insect attacking loblolly and shortleaf pine plantations in the South. Attacks have been unusually heavy the past two years. Severe infestations of young trees markedly reduce height growth and stimulate excessive branching that results in forked or crooked stems. The effect of the injury on final yield and quality of the crop has not yet been assessed.

Aerial spraying with DDT, or possibly other insecticides, may be an effective control for the tip moth, but landowners have no information

to help them decide how much they can afford to spend for this protection. Study plots are being established at points throughout the South for the purpose of comparing rate of growth and final timber yields on treated and untreated plots. The plots will be maintained for 25 to 30 years to show actual wood production at the end of a rotation. This information should show the line between profitable and unprofitable spraying for tip moth.

In the meantime, research will continue in an attempt to find more practical methods of direct control.

Natural Control of the Forest Tent Caterpillar

Spring defoliation of gums by tent caterpillars was reported in Southern Forest Pest Reporter No. 22. Subsequent studies in the Alabama River area have discovered three parasites--two fly species and a fungus. Natural control by these agents may explain the observation that outbreaks of the insect seldom last more than two or three years in the South.

In June, fully developed larvae were dying and pupae were being consumed by maggots of parasitic flies. The presence of a fungus (Entomophthorales) in the diseased larvae was verified and flies reared from the maggots were identified as a Tachinid (Achaetoneura sp., probably frenchi) and a Sarcophagid (Sarcophaga houghi).

From limited observations, it was estimated that almost 5 percent of the larvae were diseased and at least 50 percent of the pupae were killed by parasitic flies.

Cottonwood Twig Borer

For the fourth consecutive year, a 20-acre young cottonwood plantation at Scott, Mississippi, was heavily damaged by twig borers. All terminals were killed by October. Trees were seriously stunted and branched from repeated attack.

Training Sessions

Schools for acquainting foresters, forestry students, woodsworkers, county agents, and others with the identification and control of forest pests were conducted at several points in Arkansas, Louisiana, Texas, and southwest Mississippi. Foresters from Oklahoma attended the Arkansas program. Approximately 400 were present at the sessions. Similar sessions are planned for Alabama foresters in the near future. State agencies usually sponsor the meetings and take an active part in the program.

FOREST DISEASES

Oak wilt. --Oak wilt fungus was isolated from a wilted black oak found in Stone County, Arkansas, in September 1958. This is the fifteenth Arkansas county in which oak wilt has been noted. Sharp County has the only serious intensification of wilt at present.

Hardwood dieback and mortality decrease. --Evidence is increasing that hardwood dieback and mortality in the South in recent years is closely related to the 1952-1956 drought. Extensive losses occurred in both upland and bottom-land hardwood stands. Sweetgum, willow, and cottonwood were severely affected, and oak and other species were also involved. During the past two years of near-normal rainfall, there has been a marked reduction in the amount of damage, and many affected stands have recovered.

An unusual side-effect of the 1952-1956 drought was the drowning of hardwoods along the Mississippi Gulf Coast during the past growing season. Root systems, apparently extending deeper during the drought to follow the sinking water table, were unable to readjust to the normal water level as it was rapidly replenished during the past summer. Trees died when the feeder roots became surrounded by saturated soil.

Pine needle diseases. --Brown-spot fungus was prevalent again in 1958 on slash and loblolly pines, causing especially heavy defoliation in 2- to 3-year-old plantations in Mississippi. Pole-sized loblolly were affected throughout the South.

Nursery diseases. --Fusiform rust incidence was again high in slash and loblolly pine nurseries in Mississippi and Louisiana during 1958. Light infection occurred even in Arkansas, where controls usually are not warranted. High infection generally results when critical control measures are ignored. Nurserymen are advised to: (a) Start spraying when germination begins; (b) In areas of high infection, spray twice a week through May; (c) Respray immediately if rain washes off previous applications.

NEW PUBLICATIONS

Copies of the following publications are available on request to the Southern Forest Experiment Station, 704 Lowich Building, 2026 St. Charles Avenue, New Orleans 13, La.

Bennett, W. H., Chellman, C.W., and Holt, W.R. Insect enemies of southern pines. U.S. Forest Serv. Southern Forest Expt. Sta. Occas. Paper 164, 35 pp., illus. 1958. (A combination of Southern Forest Pest Reporters Nos. 10, 19, and 21.)

Bennett, W. H. What you should know about the black turpentine beetle. Forest Farmer 18(3): 8, 16-18, illus. December 1958.

Toole, E. R. Decay after fire injury to southern bottom-land hardwoods. U. S. Forest Service, Technical Bulletin 1189, 25 pp., illus. January 1959.

Warren, L. O., and Coyne, J. F. The pine sawfly, Neodiprion taedae linearis Ross, in Arkansas. Ark. Agr. Expt. Sta. Bul. 602, 23 pp., illus. 1958.